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ABSTRACT

A longitudinal study of teachers' computer use and personal variables which might predict that use was performed. The study was begun with questionnaires administered to 167 preservice undergraduate elementary education majors during their final year of study, and was repeated 3 years later after the 100 participants had graduated and had worked as teachers professionally for one year. For the first phase, participants were asked to respond to the questionnaires based on their expectations, while during the second phase they responded based on experience. The criterion variable measured was level of computer use. Personal variables included innovativeness; self-competence in using computers for teaching; perceived relevance of computer use in teaching; and teacher locus of control. The following results were discovered: (1) phase 1 analysis revealed 97% expected to use computers in teaching and only 2.7% did not expect to use computers at all; (2) phase 2 revealed 61% actually used computers and 39% did not use them at all for teaching; (3) Self-competence and perceived relevance predicted computer use in the first phase, but not in the second; (4) the correlation between perceived relevance and self-competence nearly doubled between phases; (5) locus of control from the first phase predicted computer use in the second; and (6) phase 2 actual computer use data were lower than Phase 1 expectations, but were somewhat better than that of an unrelated group of practicing teachers. (Contains nine references.) (MAS)

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Title:

Tracking Teachers' Personal Variables and Computer Use: Phase Two*

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Introduction

Teachers underutilize computer technology in teaching. At the same time, there is much support for the use of computers in education. Strong evidence for this is the increasing number of computers available per student—the microintensity level. The national average has improved to 18 students per computer as of 1992 (Market Data Retrieveal). Yet, teachers have not overwhelmingly adopted computer technology for teaching. According to a national surevy, only one teacher per school, on average, integrates computer technology into his or her teaching (Sheingold & Hadley, 1990).

Questions

This apparent discrepancy between teachers' use of computers and others' expectations of teachers' use of computers broached several questions focusing on the developmental history of teachers beginning with their undergraduate training.

1. At what levels do student-teachers expect to use computers during professional teaching?
2. At what levels does the same population actually use computers after having taught professionally for one year?
3. Do any personal variables predict levels of use during either condition?

Method

A longitudinal study of teachers' computer use and personal variables which might predict that use was undertaken. The study was begun with a group of undergraduate elementary majors during their penultimate year of study and was repeated three years later after the same participants had graduated and worked as teachers professionally for one year.

Participants responded in writing to questionnaires that included several measures. Similar formats were used in both phases with the exception that for the first phase the participants were instructed to respond to the questionnaires based on their expectations while during the second phase they were instructed to respond based on their actual experience. Also, during the second phase, the questionnaires were mailed to the participants rather than the questionnaires being administered simultaneously in a classroom. Upon the first mailing, the number of respondents was poor. A follow up of telephone calls to all original participants greatly increased the number of responses.

Participants

During the first phase, 167 preservice undergraduate elementary education majors participated (Marcinkiewicz & Grabowski, 1992). During the second phase, 100 of the original participants participated. Attrition was due to untraceable change of address, failure to respond, or change of profession.

Variables

The criterion variable was levels of computer use. The personal variables were innovativeness, self-competence in using computers for teaching, perceived relevance of computers for teaching, and teacher locus of control. Demographic data for age, years of computer experience, and gender were also collected.

Instruments

The instruments used included the following:

1. Levels of Computer Use (Marcinkiewicz & Welliver, 1993) scale based on the model of Instructional Transformation (Rieber & Welliver, 1989).
2. The Innovativeness Scale (Hurt, H. T., Joseph, K., & Cook, C. D., 1977).
3. Self-competence in computer use for teaching measures were developed for the study.
4. Perceived relevance of computer use to teaching measures were developed for the study.
5. Teacher Locus of Control Scale (Rose, J. S., & Medway, F. J., 1981, 1982).

Analyses and Results

Results of the LCU scale were compared, logistic regression was calculate to identify predictors of levels of computer use.

a. Phase 1 data analysis revealed 97% expected to use computers in teaching and only 2.7% did not expect to use computers at all.
b. Phase 2 revealed 61% actually used computers and 39% did not use computers at all for teaching.
c Self-competence and perceived relevance predicted computer use in the first phase but not the second.
d. The correlation between perceived relevance and self-competence nearly doubled between phases.
e. Locus of control from the first phase predicted computer use in the second, c2 (1, n = 150) = 4.5, $p < .03$.
f. Phase 2 actual computer use data were lower than Phase 1 expectations but were somewhat better than that of an unrelated group (N= 170).of practicing teachers (Marcinkiewicz, 1993). See Table 1.

Table 1:

Computer Use: Phase 1 vs. Phase 2 vs.Other Practicing Teachers'

Levels of Computer Use	Phase 1 Expectations	Phase 2 Actual	Other Practicing Teachers' Actual
Nonuse	2.7	39	43
Utilization	84	60	49
Integration	13.3	1	8

Discussion

Overall the participants' actual computer use was lower that the ir undergraduate expectations, but somewhat better than that of an urelated comparison group of practicing teachers. The differences between the expected and actual use invite several explanations. The levels for actual use could have been a regression to the mean, on the other hand, when the levels of actual use were compared with actual levels of the unrelated group the former did better. They a significantly higher percentage of computer users and a lower percentage of computer non-users. The high expectations of computer use during the initial phase could be attributable to a the universtiy teacher training program. While no personal variables were sustained as contributors, the increase in correlation between perceived relevance and self-competence in the use of computers for teaching suggests their collinearity. The identification of teacher locus of control from phase 1 as a predictor of computer use during phase 2 may have practical application in guiding student teachers towards integrating educational computing.

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